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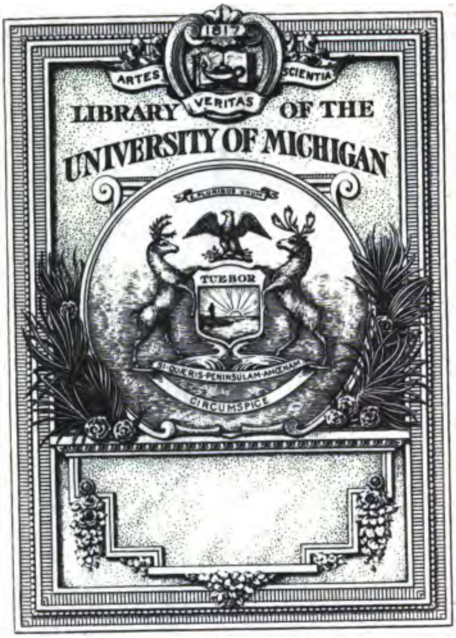

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International Fisheries Exhibition

LONDON, 1883

ON

TRAWLING

446

BY

ALFRED W. ANSELL

On the Dogger Bank in the cold North Sea,
Wearily, day and night toil we.
—*Old Song.*

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International Fisheries Exhibition

LONDON, 1883.

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CONFERENCE ON TUESDAY, JULY 24, 1883.

The EARL OF DUCIE in the Chair.

TRAWLING, 1883.

THE Beam-trawl is in most use amongst the English, French, and the Netherlands; and the trawling is prosecuted principally in the North Sea and around our coasts by craft of various description, rig and tonnage. There are also different modes of preserving the fish in a fresh state when caught, and in its conveyance to land and the markets for which it is intended; there is the inshore and the deep sea trawling.

The inshore trawling is prosecuted much in the same manner as the deep sea, but these do not go in fleets and the craft are necessarily smaller and the gear lighter, by them we have the bays and shallow parts of our coasts fished over, these craft using small mesh trawls doing great injury. Deep sea or Beam trawling as practised on our coasts has during the last century sprung from comparative insignificance to an important and increasing industry.* The rapid development of late years may be traced to the introduction of ice and the spread of our railway system, by which the catcher has been enabled to get the fruits of his toil distributed to the many thousands dwelling in the inland towns, those who seldom or never saw or tasted salt water fish.

[1] Brixham claims to be the nursery of trawling in England.

As the difficulty of transit has been removed, and the means of getting fresh fish to the millions has been increased, so the trade has steadily increased, and now the commoner and more plentiful sorts of fish are transmitted in thousands of tons to starving labouring classes inland, supplying them with a good nutritious and wholesome meal at a moderate cost. But much more has yet to be done in this respect with the large supplies, now daily landed at the different fishing stations, affording an immense traffic to the several Railway Companies over whose lines the fish is conveyed. The question *must* come, nay, indeed, is *now* to the front, "Cannot this fish be carried at lower rates by the railways, and still be remunerative traffic?" I think so! The rates are excessively high in comparison with other commodities, and as the companies free themselves from any responsibility incurred by delays, through special agreement with the sender at lesser rates, it brings fish upon a level with other commodities that are carried; and there is a fair margin for a reduction in fish rates. And as there are also thousands of tons of the coarser kinds of fish which will *not* bear the high rate of carriage which are consequently wasted, there would, with *lower* rates, be increased traffic, which would be recuperative to the Companies.

There are thousands of tons of good wholesome food ready to be consumed, and millions of starving poor waiting for and wanting it! Think of that! If the poor *are* to have cheaper fish it must be through the railway companies reducing the rates.

The great Creator has given a bountiful supply, the catcher gets but poor reward for his labour, and is willing to take what will barely remunerate him for his toil, but the giant "High Railway Rate" bars the way, and says to the starving poor, you shall not partake of God's bounty.

RATES FROM HULL.

To	Fish (except prime). Per cwt. Owner's risk. s. d.	Fish (except prime). Per cwt. Company's risk. s. d.	Ripe Fruit. Per ton. £ s. d.	Old Potatoes, packed. Per ton. £ s. d.		Fresh Meat. Per ton. £ s. d.	
Leeds	1 6	1 11	15 0	7 11	2 tons lots	1 0 0	
Manchester . . .	1 9	2 2	1 10 0	12 1 4	„	1 15 0	at owner's risk.
Liverpool	2 0	2 6	1 16 8	12 6	„	1 11 8	
Birmingham . . .	2 3	2 10	1 12 6	15 10	„	2 3 4	
Glasgow	3 0	3 9	2 1 8	1 0 10	„	2 11 8	
London	(special) 1 6	1 11	2 10 0	15 10	„	2 0 0 2 10 0	exclusive of use of hampers and cloths. inclusive of do.

The number of British deep-sea trawlers may be taken at 3000 (not including steam-cutters), Yarmouth leading with 700, Hull and Grimsby next, making together about half the number, the rest being scattered around our coasts. Such smacks as sail from Yarmouth, Hull, and Grimsby, I class as the deep-sea trawler. Taking the average catch of each of these at 100 tons brings the total weight to 300,000 tons; irrespective of the inshore trawlers' catches, as some catch principally the coarse kinds in great quantity (as in the case of Hull and Grimsby, and also Messrs. Hewitts), and others *less* of coarse and *more* prime, we may take an estimate at £10 to £12 per ton as the price it fetches, this will give us a total money value of fish, caught by the deep sea trawler, of £3,000,000 at £10, or £3,600,000 at £12.

If we take capital employed in producing this at a total of £15,000,000, invested in floating and shore property, it is not over estimating it. We have ice ships, ice houses, steam carriers, curing houses, storing houses, and many other things too numerous to mention. The number of hands to man these vessels at 5 or 6 hands per ship (though some carry more) makes from 15 to 18,000; the latter is more like the number. To this we add 2000 who are out of berth by changing ships, we have then 20,000 hardy and experienced hands employed in deep sea trawling, and who have no *other calling* or *occupation.* Some of these have families, and calculating two only in each ship to be married, with each a wife and four children, we have 30,000 more who are *altogether dependent on the trawl for support.* But as the trade cannot be carried on without assistance of shore-labour, it gives employment to more than as many more, such as packers, curers, labourers, watchmen, coopers, net-makers, riggers, &c., and a vast number of other trades too numerous to mention.

So, we have 50,000 wholly and directly depending on this industry for support, and more than double that number on shore whose maintenance is derived from it, independent of tradesmen.

I said the development of the trade might be traced to the use of ice, this is manifested in the history of the trade at the ports of Hull and Grimsby.

					Tons.		£.
Hull in	1845	possessed	21	vessels of	570	value	6,425
„	1873	„	330	„	19,800	„	247,500
„	1882–83	„	417	„	29,233	„	555,000
And 9 Steam Carriers, and 6 Ice-ships							

Grimsby, in 1845, was not used as a fishing-port, but thirteen years later—1858—a few—some four—of the Hull smack owners were induced to migrate to Grimsby, and others soon followed; but the fleets being too small in number to work the trade successfully, ice was introduced by which means each smack could fish his own voyage, iceing each haul till a sufficiency was obtained to make a payable trip, when he made sail for land; this introduced, what is now known as "single boating" and "iceing in bulk." The London or Barking fleets, as they were called, began the iceing in boxes or trunks, and at length introduced steam carriers to bring their fish from the fleets.*

Hull also adopted the iceing and single boating system, and prospered, as the 28 years will show, the increase being from 21 to 330 craft, with a like increase of tonnage.

In 1868 Grimsby had advanced to some importance, and the trade was in that year 26,621 tons fish; in 1880 this had still further increased to 46,930 tons. Thus we may trace to the application of ice—and also in the case of Grimsby, *special railway and dock accommodation*—the great and rapid development of the North Sea trawling. Hull has not advanced of late years so rapidly as Grimsby, but I attribute this to the want of ample and suitable dock accommodation, and the indifference of the railway company to our wants, and not from want of spirit and enterprise in her fishermen or smack owners.

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* They first iced the fish when it was packed in baskets called pads, half-pads, and pots, the ice being simply spread over it. The introduction of the trunk system was a great means towards the better preservation of the fish.

I give these instances as illustrations to show what can be done, and to point out in what direction we may look for further development. One word gives it, viz., *accommodation.*

As the increase in the number of smacks has gone on, so has also their size and tonnage increased, and we find the small boat of 24 tons now replaced by that of 90 tons, with steam appliances and improvements for getting their gear. As one thing leads to another, this has come about by the introduction of ice as a means of preserving the fish. Fishermen finding more fish by venturing farther away have gradually extended the fishing-grounds, almost covering the North Sea. Away across the Dogger Bank to the Horn reefs, and across the Fisher Bank, and in deeper water, up to 48 fathoms, after the haddocks and plaice, go the Hull and Grimsby fishermen in the winter months; and away down there, 240 and 260 miles from Spurn, in the N.E., scattered about, may now be found the single boats in great numbers. It is here the deep water necessitated the introduction of steam-power in getting the gear, and this new feature in the business soon begins to show itself, and is widely adopted. These vessels now frequently remain out three and even four weeks getting their voyage.

Meanwhile Messrs. Hewitts continue their system of fleeting and boxing with steam cutters, and as the fish is falling off more nearer home, some of the smacks from Hull and Grimsby and also other ports have resorted to their fleets, catching and sending to London; and then steam carriers are tried at Grimsby, then at Hull, and in 3 years a fleet of 13 steam carriers—9 from Hull and 4 from Grimsby—are found in attendance on the three fleets sailing under this system from the Humber. And this brings us to the present; indeed

> " Old times have changed,
> Old manners gone."

We live in an age of progression.

With this development, has the knowledge of the fishermen themselves also advanced? Yes—by extending their searches after fresh fields of enterprise comes the necessity of a better knowledge of navigation, and although the majority trust to "Blind Navigation," the lead and soil, to carry them about, and by this means do find their way about, yet there are a great number who are fairly well versed in navigation. I have been told of a case that happened about thirty years since, where a skipper could not find the silver pits, but had to return to Spurn to get bearings; what would the fisherman of to-day think of this? Is inshore trawling by steamers, and shrimp trawling in rivers and bays injurious? Yes. Without doubt great injury is done by steam trawling inshore as practised by the steam tugs in the north. It has been very recently adopted, and a very great deal of fish has been caught close inshore, in places that could not be worked with advantage to a sailing trawler, on account of the rough ground affording only a limited area of clear bottom to fish. These spots have been the haunt of the fish, and they have, undisturbed, bred and increased there; the result of it has been a falling off of late. I believe much harm has been done by destroying young fry, but much greater damage has been done by the small boats which trawl for shrimps in our bays and estuaries. The nets of these trawls are so fine, and the mesh so extremely small, that nothing escapes it, and thousands of bushels of young fry are slaughtered by these craft annually. Not only on the British coast is this mischief done, but by the Dutch also, to a serious extent, in such places as the Zuyder Zee, not only are the fry taken, but occasionally a fine turbot or two is captured full of spawn; it is not an unusual thing to see fine turbots of this class, weighing 14 or 16 lbs., landed at Grimsby from boats fishing for shrimps in the lower part of the Humber, and of course the same thing is done elsewhere; what a wealth of food is thus *wasted*—the choicest the sea produces. These fish come in to spawn at certain seasons, and if left undisturbed for a time, as is the salmon, the increase would be enormous. It is a question in my opinion of no little moment whether this class of shrimp trawling should not be restricted, and steam trawlers compelled to fish beyond a certain limit of our coasts. My own opinion, based upon the facts now pretty widely known, is that inasmuch as these are the breeding places of the fishes that abound in the deep waters, it is a proper question for the attention of our legislature. Is the shrimp or prawn of the greater value as a food? Is the supply of the sole and turbot to be diminished to the enormous extent it has been of late years, and remain unchecked, that the shrimp or prawn may have its place at our tea table?

If a close time is necessary and beneficial in respect to the salmon, and there is no way of making a close time for sea fishes, should the wholesale destruction of immature fish which is going on be allowed to pass *unnoticed*, and without any *attempt* at legislative remedy? I trust some one more able than myself will be found to take the matter up.

The sole is yearly becoming scarcer, and consequently dearer, and almost out of the reach of the poor man, and, like the salmon, may be classed as the rich man's food only. To what other cause must we attribute this diminishing of supply? It has been an old proverb, that there is as much fish in the sea as ever was caught; but I should hesitate to apply this to the sole. Soles are still caught on the same grounds as before, but in such diminished quantities that they do not pay for the venture, and our boats from the Humber seek fresh fields of enterprise, and depend on the haddock and plaice, which abound on the Dogger and Fisher Bank, for a payable cargo.

When the silver pits were first discovered, and became frequented as a fishing-ground the sole was found in the winter months in such enormous quantities, that the name "silver pits" was to the fisherman no unmeaning one—so prosperous were those who resorted thither. It was not an uncommon thing for a trawler to get there 40 to 60 pots per night, which would be a ton to one and a half of a ton. The price would be from 6*s*. to 8*s*. per pot, or say from 10*s*. to 16*s*. per trunk. I have known them sold for so low as 2*s*. 6*d*., 3*s*. 6*d*., and 4*s*. per pot. The value now is from £4 to £10 per trunk, the price having risen as the take has diminished to its present insignificance.

Again a new ground was found on the opposite coast, about the island of Heligoland and Sylt. About the year 1868 soles were found there in immense quantities; but the supply is not now anything so great. Off the Texel, and indeed up and down the entire coast, the supply of soles is diminishing. May we not inquire here also what is the cause, and receive the same reply—destruction of fry? If sole has been found in large quantities in the pits in winter, about Heligoland and the Texel in summer, do they not resort to the large estuaries to spawn in summer? And undoubtedly they do, and take to deep water in winter. If inshore trawling and shrimp trawling was restricted, I am of opinion it would be much more beneficial to the fishermen and the community. The fish would have a better chance to come to maturity; and the harvest of the sea would be better.

There is one important point I should not wish to pass unnoticed—it would require international laws; but would it not be worth while to enclose certain parts of rivers and bays, and in such places as the Zuyder Zee as breeding grounds, where the spawn could mature, and when the fry was sufficiently developed it might be allowed to escape into the sea? The question is a wide one, I admit, and could not be carried on by private enterprise; but if taken up by the nation simultaneously with other countries, it would be immensely advantageous, as it would afford means to study in these places the habits and growth of sea fishes, of which we know yet so very little.

Chance brought about one of the most astonishing results in the history of the fishing trade about the year (1844), and founded the trade at Hull in consequence. One of the Ramsgate boats in extending her searches for fish was by adverse winds blown further north than it was the intention of her crew, but determined to make a try they shot their trawl in what is now so well known as the silver pits, and their plucky venture and labour was rewarded by a "miraculous draft of fishes," which were nearly all soles. Very soon this became noised abroad, and other boats followed who were equally well rewarded with good results. Hull was found a convenient port of resort, and gradually became the home of the fishermen's families for the winter season from September till April, when like the swallow they took their flight southward again, till the season came round. The number of vessels yearly increased, and were added to by Brixham sending her hardy sons in numbers to swell the ranks. Then a migration from the south and west takes place, and many owners and men with their families took up their permanent abode in the good old town of Hull. Hull flourished, and the smacks were steadily on the increase both in numbers and size, and doubtless would have advanced by greater strides had more ample accommodation been afforded by the dock and railway authorities.

Sir Edward Watkin, an able and far-seeing director and chairman of the M. S. & L. Railway, invited a number of smack owners to Grimsby with promises of help in advancing their interests ; a number in response went there, and thus a second fishing port was established on the Humber, and which now outrivals Hull. There is now a fleet of trawlers sailing from the Humber of about 800, this is a surprising increase in 37 years, from 21 small vessels to 800 of the finest and largest of our trawlers in the North Sea.

Some years ago it was affirmed that trawling did great mischief by destroying the spawn, but that foolish notion was exploded by the inquiry that was then made in consequence, and which brought out much valuable information. It was then asserted in defence of trawling, "that like the plough the heads and trawl worked the bottom of the sea, doing good instead of harm." This statement I think has been borne out by facts since, one of which is worth mentioning: A few years ago (ten or twelve perhaps) our trawlers worked one part of the Dogger, finding a class of plaice in great quantity which were so ill-fed and of such a peculiarly muddy colour that they received from the fishermen the sobriquet of "Elephants' Lugs," so closely did they resemble them. These fish were sold at from *4d.* to *5d.* per stone of 14lbs., and found their way across the sea to the Dutch in a pickled state ; in the course of time this has changed, and no fish of this description is found, but in its place fine well-fed fish of different colour, clearly, I think, showing that the trawl by turning up the bottom has changed its character and also the food of the fishes feeding there. The fish now caught will make *3s.* and more per stone.

The principal kinds of fish caught in the North Sea are the sole, the turbot, brill, plaice, haddock, cod, ling, hake, lemon sole, whiting, halibut, cat-fish, skate, ray, and other sorts. At one time, when our vessels used to fish about the Botney, about September and October, they found dog-fish in immense numbers—as many as a ton at a haul would be got, but these have diminished very considerably. As they were full of herring when taken, it plainly indicated what work they had been on, so the herring fishermen have something to thank trawlers for if they have the candour to admit it.

Of the kind of fish which our trawlers now depend on for profit, the haddock and plaice are mostly sought after, as they are found in greater quantities—if there is a failure in the herring season, haddocks are of more value for curing purposes, as they are bought instead of the bloater.

Trawl fishing by day is not so profitable as at night. A day haul will not yield so much of the round fish, haddock, cod, ling, &c. It may be assumed that the haddocks and cod rise from the ground by day and sink again at night, when they are caught in greater abundance. S. and S. W. winds are the best for fishing, with a nice moderate breeze, as the trawl is towed over the ground at a moderate rate and is kept open. N. and N. E. winds are unfavourable, as the ground swell caused thereby disturbs the fish.

Is trawl fish migratory?

Doubtless, as fishermen know from experience, it is useless trying certain grounds in some months; but at regular periods fish will be found there, and they are pretty regular in the time of their return or taking off as is the swallow. Our fishermen may be said to follow the fish, going from one ground to another as the seasons come round.

The fishing grounds most frequented by vessels from the Humber are the shoal of the Dogger, the S.W. and N.W. spit of the Dogger, Clay Deeps, the N.E. part of the Dogger called the "Cemetery" from the rough, stony nature of the bottom compared to grave-stones, the Fisher Bank, and beyond the Fisher Bank, Jutland Reefs, the Long Forties, the Horn Reefs, the Sylt, the Amram Bank, Heligoland, off the entrance of the Weser and Elbe, Nordney, Borkum, Terchelling, Texel, &c., besides other grounds south of the Humber, such as the Wells Bank, &c. Messrs. Hewett (the Barking fleet) now rarely go fishing below Heligoland, but keep about Borkum and Nordney in the summer, and the S.E. part of the Dogger and Botney in the winter.

Plaice are to be found only in the spring, and fall on the shoal of the Dogger, and in the summer on the Horn Reef and Borkum. In winter below the Dogger and off the Flambro' Head.

Haddocks are found in abundance on the S. W. spit of the Dogger, about October; in September and October, they work along the pit edge of the Dogger, and, when taken, they are found to have plenty of herring and spawn in them.

Soles are caught on hard sandy ground, in warm weather taking to deep water, such as the pits where the bottom is muddy and soft in winter, for warmth.

DESCRIPTION OF TRAWL.

The trawl varies in size as also the mesh, and requires great art in fixing. Some trawls are 78 feet long, with a beam of 48 and 50 feet, with trawl heads of 4 cwt., and these, in deep water, require 20 fathoms of bridles, and 150 to 200 fathoms of 7 to 7½ inch trawl-warp. The size mesh of the trawl is much smaller as we go south of Yarmouth. About Hull the mesh is about 3½ inches square down to 1½ inch.

My friend, Mr. Sims, will hold up a model of a trawl net, and I will endeavour to describe it. I should say that these trawls are made on shore, principally by females, and are tarred with coal tar. They are made in four parts, and are afterwards put together by the men on board the ship. The *square* of the trawl is 48 feet long. The *batings* is the part attached to the *square*, running down to the end, and diminishing in size as it goes down to make the funnel shape. Then comes underneath the *belly*, which is made of a considerably heavier twine, in order to give it strength. The *wings* run at each side and connect the *belly* and the top; they are carried on to the head, and to this is attached the ground rope. This is generally 16 fathoms in length, but sometimes it is shorter. The regulation of the trawl is a very peculiar matter, and each fisherman has his own fancy as to the fixing of the trawl, in his own particular way, in order to make more or less *bosom* to the trawl. The trawl is first attached to the balch—a small line about the thickness of the finger—and then the balch is attached to the ground rope by pieces of twine about three feet long, called the settans. Then comes the head-line, running along the cross-beam to where it is attached by grummets, there being a double mesh to the head of the square to give it strength, and through which the head line is rôve and then attached to the beam and heads. Now comes the cod line at the bottom. Underneath we have the false bellies to prevent the bottom of the net, with the weight in it, from chafing out and letting the fish escape. The cod line is the secret of the whole, because when the net is hoisted in this hangs down over the deck, and when loosed opens the net like a lady's bag, and the fish fall out. It is tied up when the trawling is going on. Then there are also what are called pockets. If it is loitering weather the fish will try to escape and go up into these pockets, just here is placed a kind of trap-door called a *flapper*, which hangs down, so that when the fish has passed in it cannot go beyond. It is a very ingeniously contrived trap for catching fish. If the vessel is fishing in 20-fathom water, it requires, according to the wind—whether a loitering wind or a fresh wind—more or less length of warp. The fishermen must be mathematicians in their own way. The ground is the base of a triangle and the smack the apex of it, and you will see that they must necessarily have upon the average a warp three times as long as the depth of water. Thus in 20 fathoms the vessel would require 60 fathoms of warp out, independent of the bridles. If the wind is very strong this length can be increased; if it is loitering it should be diminished. So that fishing is an art which requires continual attention to trawl warp and to the sails of the vessel, to moderate or accelerate her speed to such a degree that the trawl shall always be doing its work evenly and smoothly over the bottom of the sea, not in a jerky manner, which would lift it; if this occurs the ground rope is lifted off the ground, and the consequence is that the fish, instead of going into the net, escape underneath it. The object of having the trawl heads high, as we have them in

Hull, and giving what we call a good back to the beam, is to lift up the *square*, in order to catch the haddock, as they are always found to swim further from the ground than other kinds of fish. Therefore the higher the heads are the more haddock are caught. Again, with the ground rope, if the men want to catch soles, some of them resort to chain ground ropes. The smaller and heavier the ground rope the more it attaches itself to the bottom, and the more soles are caught in consequence. The habit of the sole is to keep close to the ground; and sometimes, I have heard it said by fishermen, the soles are supposed to be buried underneath the sand, and require a great deal of disturbing to get them into the nets. I do not know whether there is anything I have left out; if so, perhaps Mr. Sims will tell us.

Mr. SIMS: In fishing hard ground for soles we should shorten the ground rope, and not drag the trawl quite so fast; just go with the tide. But if we are fishing for hake or haddock, then we say, "Give her sheet;" that is, force it all you can, so that you do not lift it off the ground.

Mr. ANSELL: The cost of a first-rate trawler, such as the model now exhibited, with all appliances, and nearly 1,000 yards of canvas is about £1,600; we have many such in Hull, and hope to have many more. The proceeds of the catch on the single boating system are dealt with in this way: A trawler generally makes three voyages, lasting six or eight weeks, and when settling time comes, the working expenses, such as salesmen's commission, the expense of landing the fish, and other little items are taken out first. Then comes the sharing; the Captain gets a share of $1\frac{3}{8}$; the mate $1\frac{1}{8}$, making $2\frac{1}{2}$ shares out of 8, leaving the remainder for the owner, out of which he has to supply the smack and all fishing gear and nets replacing when worn out or lost, which is frequent, also the food for the three remaining hands, which averages about 10*s.* a week, and to pay them their wages. The third hand, as we term him, who comes next to the mate, receives £1 a week; the deck chap 16*s.*, and the cook 10*s.* That is about the average wage from Hull, varying 1*s.* more or less according to the emergencies to which the owner is put when he equips his vessel for sea. The working expenses of a trawler are about £400 per annum, independent of wages. The fishermen, I may say, make a very fair living out of their ventures at Hull and round the coast. Messrs. Hewitt sail their vessels on a somewhat different system, but still on a kind of partnership—capital and labour combined, which I hold is the best method of working that can be devised. The more work the men do, and the more successful they are, the more money they get. Messrs. Hewitt's system is slightly different, but it comes to much the same. I prefer the Hull system myself and so do our fishermen. As an owner I do not, because I do not get quite so much as Messrs. Hewitt do.

On the single boating system a smack can remain away three or four weeks, iceing and catching his voyage. A night haul is made by shooting the net about 8 P.M., trawling till three or four, about eight hours. A day haul is about five hours; but the length is necessarily regulated by the nature of the bottom where they are fishing; under the Boxing system the fish are sent to market every day by steam carriers, and the vessels fish in fleets together, and their movements are regulated under the control of an experienced fisherman who is the appointed Admiral; these movements and also the fishing are directed by means of flag signals by day and by flares and rockets at night. Each fleet has its own particular code, one of which is the following :—

Admiral's Signals by Day.

For sailing	Flag at foremast head.
For trawling	„ hauled down.
Not to board *	„ at mizenmast head.
Sailing before boarding	„ both mast heads.
Cutter wanted	„ half mast.

Admiral's Signals by Night.

For sailing	White rocket at intervals.
For tacking	Flare on quarter and a white rocket.
For trawling on port tack	Three flares and a red rocket.
For trawling on starboard tack	„ „ green rocket.
For hawling (getting the trawl)	Two flares and two white rockets at one time.
For laying to	One flare at mast head and one on the quarter with a white rocket.

In strong winds the fleet sometimes get scattered, and to facilitate their gathering again without loss of time, different places of rendezvous are arranged according to the season of the year, thus :—

From February 1st to March 1st	Tail end of the Dogger.
From March 1st to August 1st	Off the Horn Reef Lightboat.
From August 1st to October 1st	Clay Deeps.
From October 1st to February 1st	The Silver Pits.

These are well-known places to all fishermen.

The steam cutter will bring to land from 1000 to 3000 boxes or trunks of fish containing 5 or 6 stones weight each, doing the distance in from 30 to 36 hours from fleet to port. After discharging cargo, she commences to load again with ice and empty trunks for the fleet at sea, taking out also clean clothing and many a loving epistle from dear ones at home, also stores of food and net, sails, rope, boats, &c., &c. Thus a continual communication is kept up with the land, and information supplied to those at sea, of all that is taking place on shore—the state of the markets and so on.

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* Boarding means ferrying the fish from catcher to cutter.

Amongst these fleets may be seen the abominable "Cooper" or floating grogshop doing its deadly work, but thanks to the Thames Mission, a powerful influence is now brought to bear against them by mission smacks on board which the Bethel flag is hoisted and divine service held regularly on the Sabbath with excellent results.

Considerable feeling has been evinced by the fishermen at Hull and Grimsby against the Boxing system in winter, but as the system becomes more established doubtless this feeling will wear away.

In summing up the advantages or otherwise of the two systems of fishing as practised out of Hull and Grimsby, the recent Board of Trade inquiry at Hull says, "We are of opinion that the 'single boating' system, whilst ensuring to the men less hardship and possibly conducing to instruct them in a more perfect knowledge of their business, is also productive of a great waste of fish. The fleeting system, on the contrary, is calculated to secure a more regular and continuous supply in a fresher state.

This system is pretty generally adopted in the summer months—from April to October—by the Hull and Grimsby boats. But there are some who still keep to the old bulk system of fleeting; these will join in companies of 20 to 30 boats, and share the result of the common catch at the end of the voyage—the duration of the voyage on the Boxing and the Bulking system is about 8 weeks. The difference is in the mode of conveying the fish to land and the results. In the Boxing system the fish is packed in boxes, and ferried each morning to the steam cutter in attendance, is then put below and covered in ice, and soon the cutter is on her passage to Hull or London. In the Bulking fleet, as it is termed, the fish is ferried to the sailing cutter and then placed below in compartments or pounds, each kind by itself, and placed in alternate layers of ice and fish without boxes. On arrival at market the fish is picked up by hand and filled in kits or turns, and sold in Hull, by weight, and Billingsgate, London, by package.

When October comes a considerable number of boats leave the Box fleet, and the Bulk fleets break up partnership and then resort to the single boating system, by which each boat is on his own venture and goes to what fishing ground he fancies most. By taking in a stock of ice of from 5 to 8 tons, a vessel will continue on the fishing ground until he has secured sufficient to come with as a paying voyage. They will sometimes remain away three or even four weeks, going so far as 240 miles or more from Spurn to the Fisher Bank and beyond, and fishing in 40 to 48 fathoms of water. These boats are mostly supplied with steam capstans, and from 150 to 200 fathoms 7¼ inch trawl warp is required. The application of ice and steam to trawling has brought about wonderful changes; by its aid the vessels have by degrees extended their searches after the finny tribe. All over the North Sea, and there is not a patch of ground in it that is not as well known to the experienced fisherman as the land on which we dwell, and in confidence he treads the deck as

"O'er the blue sea
His gallant barque bounds merrily,"

bringing home to thousands of toiling creatures cheap and wholesome food.

EVIL EFFECTS OF MEDDLESOME LEGISLATION.

By the alteration in the Merchant Shipping Act in 1880, by which the apprentice system was virtually abolished, a serious blow was struck at the very root of the trawling industry, and its injurious effects were severely felt by all smack owners and fishermen engaged in the deep sea trawling. It fell here perhaps more heavily than in any other branch of the mercantile marine. Had the Act been prospective instead of retrospective, the effect would have been milder, but by taking away the only means of correction, and substituting a shadow, the master and apprentice soon felt the difference in relationship, and the apprentice became more unruly, and, by a series of acts of insubordination, tired the master out and the apprentice gained his liberty. The effect has been to rob the master of his apprentice's service, entailing a loss on the trade in Hull and Grimsby alone at a modest sum—£10,000. It is needless to say that few or no boys are bound now, whereas in Hull and Grimsby, when the Act came into force, there must have been no fewer than 2,000 apprentices. Their place is now supplied by casuals, drawn from every source, and in consequence unfitted for the work they are called upon to do; the evil results of this will be felt more by-and-by than at the present. Trawling is an art requiring skill and knowledge beyond ordinary seamanship, and which can only be acquired by training and practice. They must come to it young, pass through the different grades from cook to skipper, be taught to make and mend a net, to fix and tow a trawl, to know the proper grounds and times to go there, become acquainted with the habits of the fish they catch; and to be inured to every danger, knowing no fear, of robust health, and sound intelligence. This training can only be received young, and it is gradually learned whilst apprenticed. The sooner the Act is altered the better it will be, for no better nursery for the navy can there be than the trawl fishery, as the history of the days of Nelson and Drake will tell.

Time will not allow me to go into the working of this business any further than I have done in a light manner, skimming as it were but a little from the surface. His Royal Highness the Duke of Edinburgh has placed valuable facts before the world, and it is only for me in the main to corroborate the statements made by that illustrious sailor.

If we review the past and look at the forward prospect, we cannot doubt, but that, with the recognition it is now receiving and with judicious help, there is a *great future* for trawling. The gradual tendency is towards steam, by the help of which longer distances can be gone. So with good harbour or dock accommodation and cheap railway rates, combined with the application of steam and ice, there is nothing to prevent the extension of the trade beyond its present proportions, by as great advance in the next quarter of a century as it has made in the past. May we hope for such success in abundance, that these "toilers of the sea," by bringing in its harvest, may enrich themselves by doing good to others.

DISCUSSION.

The CHAIRMAN, in inviting discussion on the Paper, said he should like to call attention to one point, and that was as to the size of the mesh. Perhaps Mr. Sims, as a practical trawler, would say something.

Mr. SIMS said that after the very excellent way in which Mr. Ansell had handled the subject it was unnecessary for him to go further into it, except just to describe the mode of trawling since he knew it. He did not see any difference in the shape of the trawl now from what it was 50 years since, and the only difference was that it was extended in size. He should be quite willing to go with the Chairman in the line of having the mesh larger, and thought it would be a great benefit to the trade at large. As for destroying immature fish, he thought if there were not some means taken to prevent destroying them in the bays and estuaries, in the course of a very few years the sole would be a thing of the past. He did not say they were going to exhaust the sea, because he thought there were as many soles caught now as there were 50 years since, but they were about one-fiftieth part of the weight. If you went to Yarmouth beach you could see the men picking out small immature fish—soles half as long as his finger—he was sorry to say he had done it himself—and turbot so to speak not larger than your thumb-nail. It was no use throwing them overboard, because after they once got into the net they were dead. This summer he had known that the smacks on the Jutland Coast had been taking shovels, and shovelling overboard by the ton small immature plaice, not larger than the thumb-nail and many not larger than the palm of one's hand. He believed that scientific men had done wonders in regard to the salmon fishery; they put a hedge round it, and put a guard upon it, and if it had not been so what would have been the consequence by this time? Unless there had been a close time for the salmon fishery, and all inland fisheries, he believed they would have been exhausted before now, or very nearly so. But when the inquiry was held there were men of science examined and fishermen; but fishermen were only anglers—fresh-water fishermen—they never called in the aid of any deep-sea fishermen at all. Their opinion was never asked on the matter. The salmon fisheries were improved, and would be more improved until salmon would be sold alongside of plaice, and in fact plaice would have the advantage, and make more money than salmon, because it would be scarcer, whilst the sole would be a thing of the past unless something was done. He could not say what should be done, but something must be done if they were to have a sole at all in this country. In conclusion he would say that he believed the Exhibition was got up for the benefit of the fisheries, and he saw that the numbers of those who had been were close upon a million. There would, therefore, be a great return for the outlay occurred, and the question was what should be done with the money? He would say, let the trade have the benefit, and the way he would suggest would be by laying the foundation for an Orphan Home for fishermen. H.R.H. the Duke of Edinburgh said something should be done for them in the way of insurance, and he thought they might start in that direction. If that were done, he, as a fisherman, would add one brick to the building, and if the plan were adopted he would give 500 guineas to start it.

The MARQUIS OF HAMILTON then proposed a vote of thanks to Mr. Ansell for his very able Paper. It was evident to everybody that it was the result of a practical mind, and of long attention to the subject, with which the writer was very familiar. He had attended many of those Conferences, but he might safely say that both in the subject matter of this Paper, and in the way in which it had been handled, it was second to none. Some of the matters touched upon might, no doubt, be open to discussion, but without discussion they could arrive at no practical result. The noble Chairman was a practical trawler himself, and he had no doubt he would, as an amateur, be able to give information, which would coincide very much with what had been said by Mr. Ansell. Few people who lived on shore and consumed fish from the sea, were aware of the great dangers undergone by fishermen in obtaining this fish, and he thought the trawlers had to encounter no less danger than any others. It must be the desire of all those who were interested in fishermen or fisheries to promote as far as possible the welfare of that class—not only to protect them in their vocation, but also to enable them to increase the supply of that food, by means of which they earned their livelihood. Mr. Ansell had touched upon two subjects referring to this matter—the question of legislation, and also the importance of lower railway fares for the carriage of fish. With regard to legislation there had been able remarks made, not only by Mr. Ansell, but also by Mr. Sims, with regard to the matter of protection of immature fish, and he was one of those who could not think that the supply of fish in the sea would for ever be inexhaustible, and therefore it appeared to him that legislation in that direction could not fail to be hereafter of practical value. Immature children, both girls and boys, were protected by law, and why should not the immature species of fish, which afforded one of the greatest sources of food, also be protected? Again, with regard to the subject of railway rates, he trusted that the result of the Exhibition and of the Conferences and Papers which had been read might be to draw the serious attention of Railway Directors to the subject of revising the charges for carrying fish from the seaports to the great centres of civilisation. If any practical results in this direction were realised, he was sure those who had promoted the Exhibition would have great cause to rejoice. He was glad to hear the few remarks made by Mr. Sims, who was evidently one of those sanguine natures who thought the Exhibition would be a financial success, and he sincerely hoped such would be the case.

Mr. BRADY seconded the vote of thanks, which was carried unanimously.

Professor HUXLEY then proposed a cordial vote of thanks to Earl Ducie for his conduct of the business of the meeting. As the Marquis of Hamilton had observed, Earl Ducie was himself an experienced and practical trawler, and he quite coincided with what he said about the value of discussions upon the Paper. It was a somewhat unusual circumstance that there should be in the chair a nobleman who could practically manage the business of a trawler as well as any of those practical gentlemen who had been before them.

Admiral POLO DE BERNABÉ seconded the motion, which was carried unanimously.

The CHAIRMAN, in responding, said he felt much pleasure in having heard the Paper in which Mr. Ansell had given such a very exhaustive account of the growth of the trawling-trade, and the increase in the size of the ships, and the greater spirit of venture on the part of the fishermen themselves in traversing wider spaces of the ocean and deeper waters. No one had ever yet traced the origin of trawling. Mr. Houldsworth, in his valuable work on sea-fishing, said it was probably not a century old. But curiously enough Mr. Froude in his History of England, when describing the running fight with the Armada, said: "When further munitions of war were wanted the fastest trawler in Brixham came out with further supplies;" but he probably made a little mistake there—the vessel was probably merely a fishing boat. He was very glad to hear from Mr. Ansell that he believed there was a great future for trawling. They were apt to hear rather doleful accounts of the prospects of fishing; that fish were dearer and scarcer; and yet it was a remarkable fact that the number of men increased. The number of vessels, and their size also, was increasing from year to year. There was very often an outcry for legislation, but no one seemed able to indicate what particular direction the legislation should take. The only practical suggestion to-day seemed to be the suppression of the shrimp-trawler, and he had noticed in the different Conferences that one set of fishermen generally wanted to crush another set. He had no doubt that shrimp trawlers did some mischief, but whether they could be suppressed, whether the English shrimp was a less worthy animal than the sole and turbot, and the interest of shrimp trawlers less than those of the great mass of men who went sea fishing—he would not attempt to discuss. Professor Huxley alluded to his being a practical trawler; but of course it was only in an amateur way, as a yachtsman, that he did anything in that way, which was a very different thing to one who had to earn his living by trawling. His suggestion that something might be said about the size of the mesh, had arisen from his own experience. Not having to get his bread by fishing, he was glad to have a large mesh in order that he might allow the small fish to escape together in the sea-weed, and what sailors called muck, and he found very great advantages from this large mesh. First of all the trawl occupied a less space, cost less to make, was more easily dried, more easily drawn through the water, and more easily hauled up, and he had on the whole a better class of fish; of course the smaller fish did go through, and he was glad of it, because he knew that in future years they would become larger ones. That was his experience, which was only on what was called an otter trawl, which could only be used in shallow water, and could never be spoken of in the same breath with a beam trawl. It was a very easy and very cleanly instrument, but only fit for amateurs.